

GOLF COURSE NEWS

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Bermudagrass Report

Existing varieties improved, new types are on the developmental horizon.. 17-19



MOUNTAIN MEN

Dick Phelps, left, and son Rick have earned much of their reputation designing golf courses in the mountains. But they have also left their mark on the lowlands, and continue to do so. See Q&A with Dick Phelps, page 21.

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Of ants, flies and other friendly pests

By MARK LESLIE

FAR HILLS, N.J. — Ants that devour the eggs and larvae of cutworms, grubs and other pest insects. Parasitic flies that kill mole crickets. The risks, or lack thereof, associated with golfer exposure to pesticides.

The U.S. Golf Association (USGA) Green Section will reveal the results of investigations into these and many other matters in a soon-to-be-released report on the latest USGA-funded research projects. The research covers a gamut of topics from course construction practices and integrated turfgrass management to turfgrass germplasm enhancement, the environmental impact of golf and the Wildlife Links Program.

But key to the entire program are naturally occurring biological controls, which are becoming more

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Sports & Fitness expanding its portfolio

By PETER BLAIS

MANCHESTER, Mo. — It's going to be a busy summer for Sports & Fitness Management, the Missouri-based golf and health club management firm.

Sports & Fitness will open Fred Couples/Gene Bates-designed Stone-Bridge Golf Club in Bossier City, La., later this summer and recently agreed to purchase Garden Valley Golf Resort in Tyler, Texas. The firm is also about to break ground on a Gary Kern-designed course near St. Louis called Aberdeen and is negotiating a three-course purchase with a management firm operating facilities in Louisiana and Texas, according to Vice President

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Ocean Trails Golf Course suffers landslide between the 12th and 18th fairways, losing a bulldozer into the chasm.

Oceanside course trying to stay out of the water

By ANDREW OVERBECK

RANCH PALOS VERDES, Calif. — Southern California's answer to Pebble Beach suffered a massive setback June 2 when a 200-by 400-foot section of the 18th hole shifted out 50 feet from the rest of the course, leaving behind a 60-to 90-foot-deep ravine between the 18th and 12th holes.

The section of the course that shifted sat on an ancient landslide, which was bisected by an aging Los Angeles County sewer line. It is widely speculated that a leak in that sewer line touched off the land movement.

The Ocean Trails Golf Course, designed by Pete Dye, was only weeks away from opening and develop-

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Tests reveal good & bad of ultradwarfs

By A. OVERBECK

BELTSVILLE, Md. — As ultradwarf Bermudagrass continues to find its way onto golf course greens across the United States, independent research and on-site testing suggest that best management practices for these "super dwarfs" are radically different than for standard Bermudas.

In cooperation with the United States Golf Association and the Golf Course Superintendent's Association of America, the National Turfgrass Evaluation Program (NTEP) is currently in the second year of a five year ultradwarf test at eight courses across the

Continued on page 17



WEISKOPF BUSY IN MICHIGAN

Cedar River Golf Club at Shanty Creek joins The Legend, Schuss Mountain Golf Club and Summit Golf Club at the four-season golf and ski resort. See story, page 26.

Pebble Beach megasale being worked out

MONTEREY, Calif. — Pebble Beach has changed hands for the fourth time this decade. A group of investors that includes Arnold Palmer, former baseball commissioner Peter Ueberroth, actor Clint Eastwood, former United Airlines CEO Richard Ferris and General Electric Pensions agreed June 17 to purchase

the Pebble Beach golf resort for \$820 million.

Pebble Beach was bought for \$841 million in 1990 by Japanese businessman Minoru Isutani, who turned around two years later and sold it to Taiheiyo Club, Inc., a Tokyo-based resort company, for

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USGA funding

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He said that "given the urgency of environmental issues and needing to know what impact golf courses had on the environment, that research has been the most important."

While the long-term development of new turf varieties is a step-by-step process, questions about such issues as pes-

ticide leaching and runoff needed to be answered quickly.

The results of that research? "It's good [news] and bad," Snow said, "but mostly good. Even the bad part is good, because we can say that with most products there is practically no chance of leaching or runoff, and even with those where there is a chance, they can be managed successfully if applied properly."

Environmentalists, he said,

"realize we're not saying there is no problem. We're saying we've learned how to manage them and we can recommend to superintendents how to apply them so that they won't have a significant impact. We realize there can be problems, so we have to keep up our guard all the time."

The high-technology genetic research may bring the grandest results.

"It's successful," Snow said.

"They [scientists] have been able to accomplish quite a bit. They've been able to make the genetic transformation by transferring genes and seeing them suppress disease, or transfer tolerance to herbicides — that sort of thing.

"They did genetic transfer very quickly — more quickly than they thought possible. That turned out to be fairly easy. That means that in the future we will be successful in getting other

genes into grasses."

The sticking point may be instilling those new genetic characteristics into a breeding program and developing the type of grass desirable for golf courses.

"That could take another five to 10 years," Snow said.

Meanwhile, there is concern about introducing genetically-transformed plants into the environment. For instance, bentgrass is a premier golfing turf, but in some agricultural fields it is considered a noxious weed. If a bentgrass were developed to be resistant to Roundup and were to cross with wild bentgrass types in the field, farmers could not control the weeds.

"Herbicide resistance is one thing," Snow said. "In terms of stress factors, probably most people are not too concerned about grasses being engineered for drought tolerance. There's not much for anyone to object to there. Delays from federal agencies probably will depend on what genes we're talking about."

Of ants and flies

Continued from page 1

and more important for golf course superintendents, especially as chemical products are taken off the market. And the ant and parasitic fly studies are indicative of this work that is being done at universities across the United States.

At the University of Kentucky, Dr. Daniel Potter, an entomologist, started a three-year study in 1998 to evaluate the role of ants as "beneficial predators in golf turf," while developing "tactics for managing mound-building pest ants on putting greens with reduced environmental risk or impact on beneficial species."

"Ants, the most abundant insects inhabiting turfgrass, are highly efficient predators on eggs and larvae of cutworms, grubs and other pest insects," reported Potter, whose \$105,000 three-year study extends through 2000. "On golf courses, however, the positive aspects of ant predation must be weighed against the fact that some species build nests and mounds on putting greens and tees."

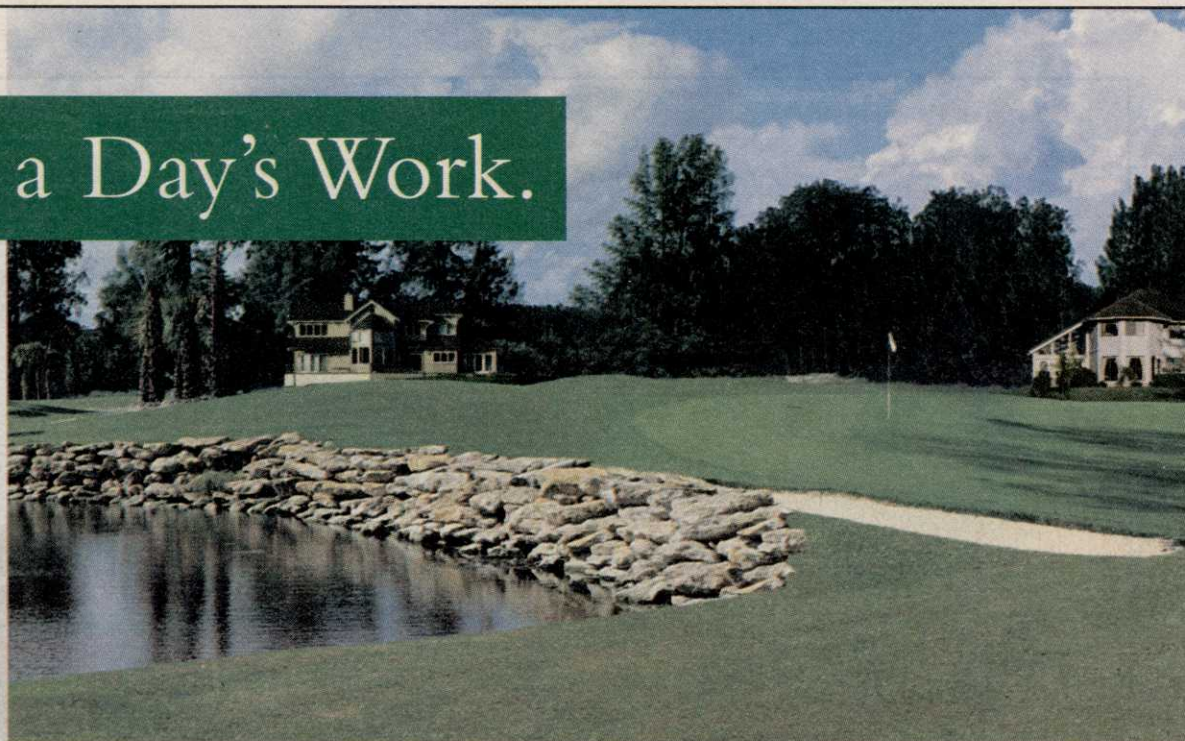
Potter's research at Kentucky courses revealed that virtually all of the mound-building problems in close-cut creeping bentgrass are caused by one species, *Lasius neoniger*. This species appears to be the major nuisance ant on courses throughout much of the country, he said.

Since surface insecticides usually won't eliminate these ants because they fail to reach the ground-nesting queen, Potter evaluated two methods for suppressing the mounding. The first involved using target-selective

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All in a Day's Work.

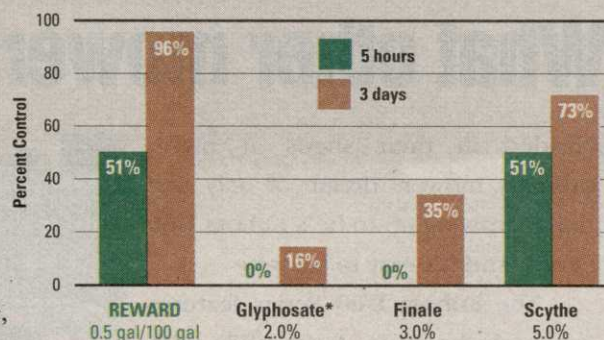


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Of ants and flies — USGA biological research nets results

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ant baits, "some of which already have revolutionized ant-control tactics used by the structural pest-control industry," Potter said.

The active ingredients in the baits were either avermectin, hydramethylnon or spinosad, each having low mammalian toxicity and a different insect-specific mode of action. Field tests on golf tees, Potter reported, "showed that use of these baits will provide rapid, 80- to 95-percent elimination of *Lasius* mounds and nests."

In another study, *fipronil*— characterized by low mammalian toxicity and very low use rates — was found effective for season-long suppression of *Lasius* nests and mounds on putting greens.

"Field experiments," Potter said, "demonstrated that *Lasius neoniger* and other ant species are very important in suppressing other insect pests. In trial after trial on roughs, fairways, or putting greens, ants eliminated large numbers of eggs and young larvae of black cutworms, and eggs

of Japanese beetles. This underscores the wisdom of selective, rather than fence-to-fence, management of nuisance ants where mound-building becomes a problem."

Fortunately, Potter added, his work with *halofenozide* (Mach 2) and *imidacloprid* (Merit) has shown that these new insecticides are "compatible with the preservation of beneficial species, including ants."

PARASITIC FLY

The parasitic fly is another example of

a natural enemy of golf course pests, namely the *Scapteriscus* mole cricket.

Dr. J. Howard Frank of the University of Florida is in the midst of a three-year study that has taken him to explore in Brazil and Paraguay to obtain stocks of the fly *Ormia depleta* and to culture them in a laboratory, from which they will be supplied to colleagues in other states for release.

The origins of this experiment began in 1987 when a stock of the fly was captured in subtropical Brazil and brought to Florida, where it was cultured in quarantine. About 10,000 of these flies were released in areas of Florida in 1988, and a population was established in peninsula Florida at 28 degrees North latitude.

Since subsequent release of these flies in Georgia, North Carolina and Alabama failed, entomologists hope that flies captured last November in extreme southern Brazil (at 30 degrees South latitude) will better adapt to withstand the colder winters of the United States.

In a laboratory in Brazil, larvae of these *Ormia depleta* flies are being reared on *Scapteriscus* mole crickets and brought to the pupal stage, Frank said. Fly pupae were brought to quarantine in Florida in early summer to establish a laboratory culture.

Work this year is focusing on labor-intensive culturing of several of the flies for distribution to other Southern states. Turfgrass entomologists in Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Texas will release these flies upon delivery, Frank reported.

PESTICIDES AND GOLFERS

In a series of pesticide dislodgeability studies conducted to evaluate the risks associated with golfer exposure to pesticides, University of Florida master's degree student W. Raymond H. Snyder discovered results that should please the golf industry.

For example, exposure to chlorpyrifos on 18 greens one hour after application every day for a lifetime was calculated to provide a Hazard Quotient (HQ) of 0.31. HQs less than one indicate that the residues present are at concentrations below those that would cause effects in humans, while an HQ greater than one does not necessarily infer the residue levels will cause adverse effects, but rather that the absence of adverse effects is less certain. A similar calculation for exposure after irrigation was 0.02.

"Chlorpyrifos has a rather high Reference Dose (i.e., acceptable amount of exposure) that reduces the HQ value," wrote University of Florida Drs. George H. Snyder and John L. Cisar. "Calculations for the other pesticides, some of which have higher Reference Doses, will be reported next year." Those other pesticides are 2,4-D, *dicamba*, *isazofos* and *fenamiphos*, which were applied to Bermudagrass greens.

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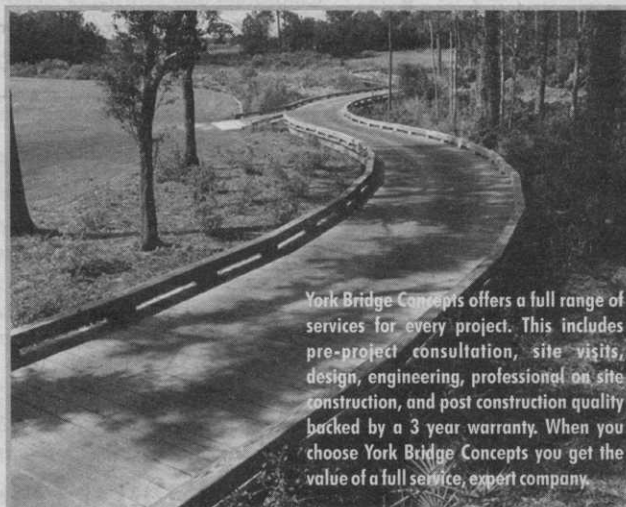
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